



The Integrated Public Alert and Warning System (IPAWS)

Antwane V. Johnson, Director



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Public Alert and Warning Overarching Requirements

Communications Act of 1934 - War Emergency Powers of President

Executive Order 13407 - Public Alert and Warning System

➤ “It is the policy of the United States to have an effective, reliable, integrated, flexible, and comprehensive system to alert and warn the American people in situations of war, terrorist attack, natural disaster, or other hazards to public safety and well-being (public alert and warning system), taking appropriate account of the functions, capabilities, and needs of the private sector and of all levels of government in our Federal system, and to ensure that under all conditions the President can communicate with the American people.”

- President George Bush, June 2006

1995 Presidential Memorandum; “***Emergency Alert System (EAS)*** **Statement of Requirements”**

- President Clinton, September 15, 1995

Provides 12 requirements for the national-level EAS, including:

- Will be configured to provide a high probability of assurance that at least a portion of the total system will be available for Presidential use under the most severe conditions.
- Fully integrated from the national to local level, yet capable of independent local (Priority Two) and state (Priority Three) operations.

47 Code of Federal Regulation (CFR)

- Federal Communications Commission

Levies system and operational requirements, including

- Part 11 – Emergency Alert System – FEMA Primary Entry Point stations provide initial broadcast of the Presidential Alert, and IPAWS-OPEN is available for monitoring and delivery of a Presidential CAP Alert message over the internet.
- Part 10 - (Wireless Emergency Alerts) – FEMA serves as the Federal Alert Aggregator and Gateway between state/local/territorial/tribal alerting authorities and cellular industry participants in the WEA system.



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42 USC CHAPTER 68, SUBCHAPTER II: DISASTER PREPAREDNESS AND MITIGATION ASSISTANCE (Stafford Act)

§5132. Disaster warnings

(a) Readiness of Federal agencies to issue warnings to State and local officials

The President shall insure that all appropriate Federal agencies are prepared to issue warnings of disasters to State and local officials.

(b) Technical assistance to State and local governments for effective warnings

The President shall direct appropriate Federal agencies to provide technical assistance to State and local governments to insure that timely and effective disaster warning is provided.

(c) Warnings to governmental authorities and public endangered by disaster

The President is authorized to utilize or to make available to Federal, State, and local agencies the facilities of the civil defense communications system established and maintained pursuant to section 5196(c) of this title or any other Federal communications system for the purpose of providing warning to governmental authorities and the civilian population in areas endangered by disasters.

(d) Agreements with commercial communications systems for use of facilities

The President is authorized to enter into agreements with the officers or agents of any private or commercial communications systems who volunteer the use of their systems on a reimbursable or nonreimbursable basis for the purpose of providing warning to governmental authorities and the civilian population endangered by disasters.

(Pub. L. 93–288, title II, §202, May 22, 1974, 88 Stat. 145; Pub. L. 103–337, div. C, title XXXIV, §3412(b)(1), Oct. 5, 1994, 108 Stat. 3111.)



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Evolution of Public Emergency Alerting in the United States



1951 - 1963
CONELRAD

1963 - 1997
EBS

1997 - Present -
EAS IPAWS



Originally called the “Key Station System,” the **CONTROL** of Electromagnetic **RADI**ation (**CONELRAD**) was organized a network of **AM radio** stations with special procedures for warning citizens and providing emergency instructions and information in the event of a national catastrophic emergency.

EBS expanded emergency warning to include **radio and TV** stations providing the President with an expeditious method of warning the public during a national emergency.

Later expanded to enable state and local officials to alert local populations during local emergencies and provide for better and more accurate handling of alert reception and rebroadcast.

EAS modernized the EBS providing automation of alert transmission and activation to **radio and TV** stations with the adoption of the Specific Area Message Encoding (SAME) protocol and provided better integration with National Weather Service and state and local alert systems.

IPAWS integrates and expands public alert and warning from just **radio and TV**, to **wireless devices, Internet applications**, NOAA All-Hazards **Weather Radios**, and **future communications technologies** using an international open standard for information exchange - the Common Alerting Protocol or CAP.

IPAWS enables public safety officials at all levels of government to warn citizens via a diverse and integrated network of private sector communications systems.



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IPAWS enhances and extends a national infrastructure and capability to local, state, territorial, and tribal officials for public alerting and warning

What is IPAWS?

IPAWS is a National System for Local Alerting

authenticated emergency alert and information messaging from emergency officials to the public through IPAWS connections to:

- radio and television as Emergency Alert System broadcasts

- cellular phones as Wireless Emergency Alerts

- NOAA All Hazards Weather Radio

- Internet applications and websites

FEMA, tasked by DHS, is responsible for:

- Development, operation, integration and maintenance of the IPAWS which includes the EAS, WEA, NOAA HazCollect, and IPAWS Alerts Feed components plus future connections for alerting TBD

- And making it available for state/local/territorial/tribal to use



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IPAWS is Not:

Not a subscription based mass notification system

Not an ETN or reverse dial phone system

Not an SMS or email sign up service

Not a paging or distribution list notification system

e.g. can't send a recall notice to a select group of employees

*IPAWS does not know
phone numbers or
people's location!*

IPAWS supports:

Emergency Public Warning and information

urgent messages & info to protect & manage public safety

Warning **all** citizens in any given area

Residents & Visitors



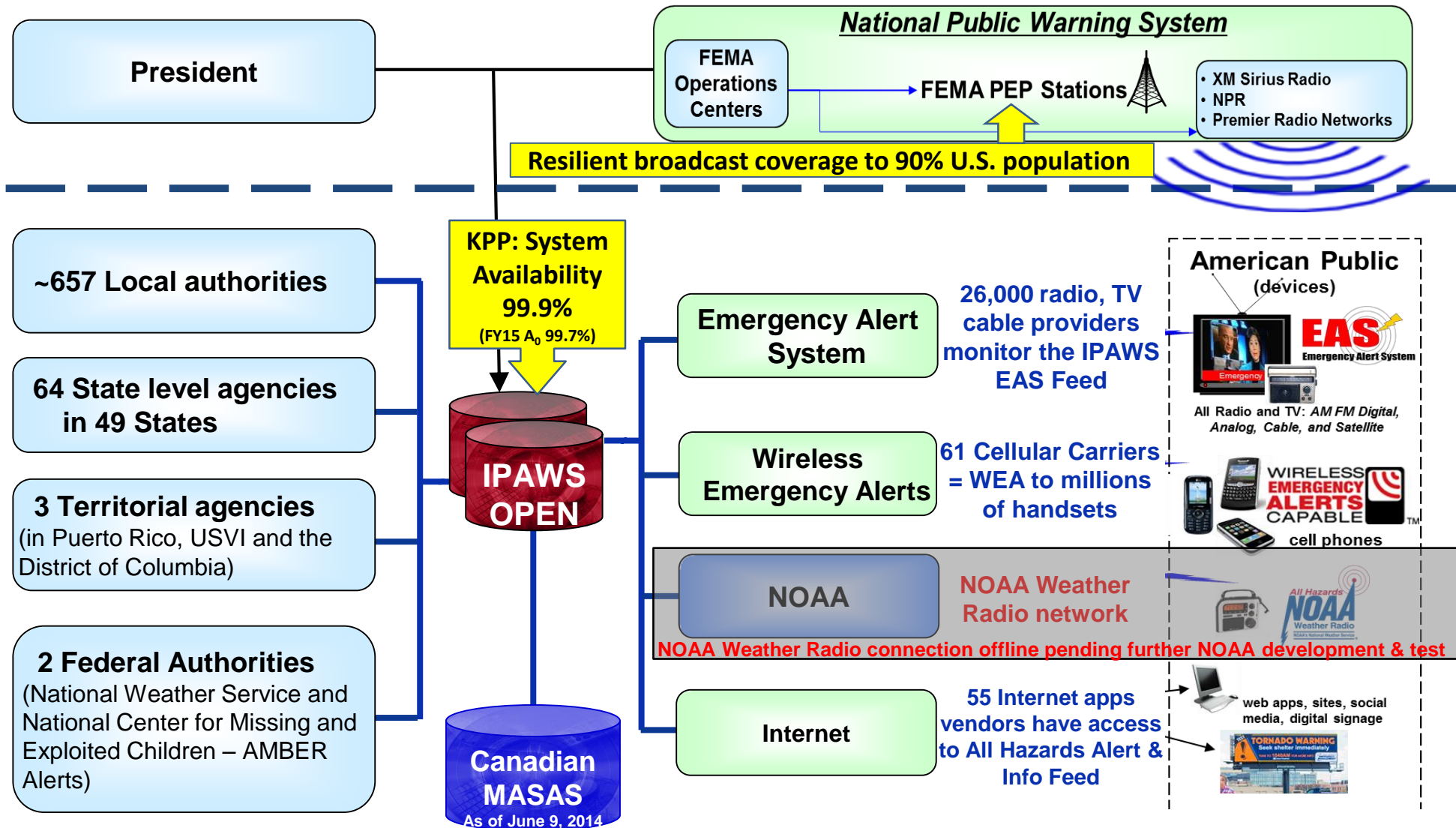
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IPAWS - two system components

Over 700 users

NPWS

IPAWS-OPEN



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Connection with Canadian equivalent of IPAWS for cross boarder sharing of disaster information

User counts as of Oct 2015

When is IPAWS Used?

When public safety officials need to warn of a threat to public safety:

- ✓ Evacuation
- ✓ Shelter-In-Place
- ✓ Law Enforcement Situations
- ✓ 911 Outage
- ✓ Road Closure
- ✓ Chemical Spill/Release
- ✓ Water Contamination
- ✓ Distribution Location
- ✓ Emergency Relief Location
- ✓ Emergency Shelter Locations
- ✓ Dam Release Alert
- ✓ Child Abductions/AMBER Alerts
- ✓ Critical Power Outage
- ✓ Nuclear Accident
- ✓ Landslide
- ✓ Pipe Line Break
- ✓ Extreme Weather
- ✓ Flooding
- ✓ Volcano
- ✓ Earthquakes
- ✓ Wildfires



IPAWS Usage

(as of January 2016)

39,000

- messages processed average per month

Since 2012

22,196

- WEAs for severe weather sent by NOAA

593

- WEA AMBER Alerts sent by National Center for Missing and Exploited Children or State AMBER Coordinators

299

- WEAs sent by local or state authorities

5,115

- EAS messages delivered

1,304,284

- Posted to All-Hazards Information Feed



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National Public Warning System (FEMA Primary Entry Point (PEP) Stations)

Private Sector radio stations participating cooperatively with FEMA

FEMA provided, installed and maintained:

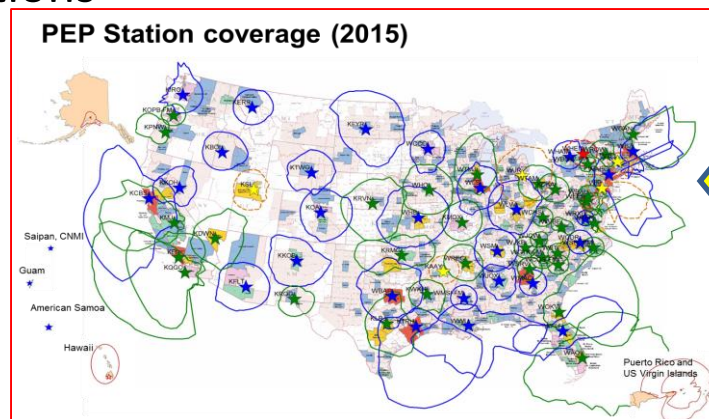
- Power generator and extended fuel supply system
- Communications equipment:
 - Telephone lines and audio coupler
 - Satellite communications
 - “Special” EAS Encoder/decoder
- Backup transmitter and broadcast equipment



Three PEP Station Configurations

- Expansion stations – newly outfitted in last several years. Include modular “out” building, EMP protected generators and back-up transmitters.
- “Legacy” stations – original program stations dating from early 1990’s. No EMP, No back-up transmitters. Various fuel and generator configurations.
- Other – non-improved and auxiliaries stations

Modernization Project - retrofits legacy PEP stations to Expansion configuration as funding is available



**Resilient
Broadcast
Coverage
90% U.S.
Pop.
Timeliness
KPP:
Activation
<5Minutes**



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Emerging Technologies

Limited Engagement

- AWARN
- SIRIUS/XM
- HSIN PILOT
- Multi-lingual alerts (ECHO Minnesota)
- Ubiquitous Alerting



FEMA



Banner Alert on In-Home TV

- Next generation for delivery of emergency information to the public.
- Based on next-generation television broadcasting standard – ATSC 3.0 (On track for commercial deployment in 2017).
- Alerts simultaneously sent to TV sets, tablets, in-car systems, and smartphones *etc.* without using cellular data.
- Delivers rich media content even if the cell network fails and the electric grid is down – indoors or outside
- Pipeline for acute warnings and extensive information for disaster preparation and response.
- CAP and IPAWS compliant.

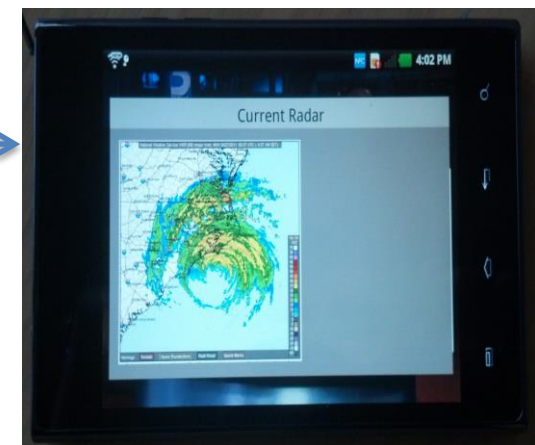
Example of Interactive Screen Options



Pop-up Alert Message



Associated Media Menu



Selected Rich Media

SIRIUS XM

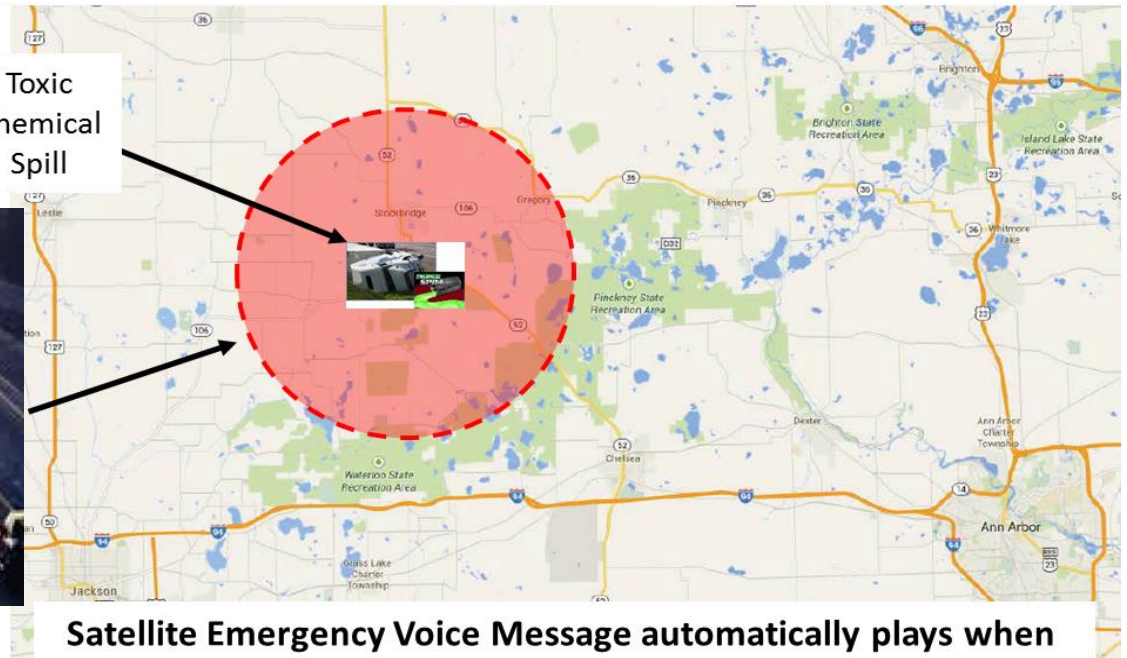
- Satellite fleet covers contiguous US and elsewhere in North America
- Terrestrial repeater network supplements service in urban areas where satellite reception could be blocked by buildings or other obstacles
- Satellite receivers are factory installed in ~ 70% of all new vehicles sold in the US



Satellite Based Delivery

When vehicle enters area defined by V2X system, emergency audio preempts all audio sources and is played to driver.

Toxic
Chemical
Spill



Satellite Emergency Voice Message automatically plays when vehicle is within geo-fenced area specified by the V2X system.



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Questions

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